



## CLINICAL STUDY OF DYSURIA IN PREGNANCY

### KEYWORDS

Dysuria, Pregnancy, Urinary tract infection, Vulvovaginitis

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**ABSTRACT** Objective: The purpose of the study is to evaluate and identify prevalence of genital cause as an

important etiological factor for dysuria and also the common causative organism involved; and relative incidence of urinary tract and genital tract infections in relation to age and parity.

**Methodology:** Study involved 100 pregnant women with complaint of dysuria, attending Antenatal clinic of department of Obstetrics and Gynaecology, of Government General hospital attached to Kurnool Medical college, Kurnool during the year 2006. They were selected irrespective of age, parity, gestational age. After detailed examination, midstream urine sample was subjected for microscopic evidence of pyuria, gram's staining and microbial culture. Two vaginal swabs were collected and subjected to wet mount examination, culture and sensitivity.

**Results:** Out of 100 patients with dysuria, 54% had urinary tract infection, 26% had vulvovaginitis, 16% had combined infection, where as in 10%, no cause could be detected. **Conclusion:** The frequency of genital tract infection as a cause of dysuria increases with age and parity. Candida and E.coli were the most predominant organisms pathogens identified.

### Introduction:

Dysuria in pregnancy is a common complaint associated with significant maternal morbidity and adverse fetal outcome. So, identification of etiology of dysuria is of clinical importance to the obstetrician to ensure maternal health and fetal outcome. Most commonly used definition of dysuria is burning pain with tingling sensation felt at urethral meatus or pain in the suprapubic area during the act of micturition (Macleod's clinical methods). Broader definition refers to anything abnormal, having to do with urination, such as frequency, nocturia, hesitancy in starting urination, decreased size of the stream, dribbling at the end of urination and a combination of these symptoms (Harrison Text book). According to Komaroff A L, dysuria is of two kinds-external and internal dysuria. External dysuria is described as pain felt over the perineum due to vulvovaginitis. Internal dysuria is described as pain felt from inside the body and is due to UTI. Dysuria is considered a cardinal symptom of UTI, but also has number of other possible causes. One such cause is genital tract infection, especially vulvovaginitis. Dysuria as a symptom of genital tract infection, is frequently overlooked. Combination of dysuria, vaginal discharge and dyspareunia are indicative of vulvovaginitis, while dysuria, urgency and frequency with or without gross hematuria indicates UTI. Incidence of bacteriuria in pregnancy increases with age and parity (Kass, 1969, 1220). Difference in enterobacterial colonization of vaginal introitus has been noted in women who are susceptible to urinary tract infection, compared to those who are not susceptible to UTI. Urethral colonization is determined by vaginal bacteria. This can be explained on the basis that, they are derived embryologically from urogenital sinus and respond to same hormones and harbor same flora. Both structures have similar mucosa and are confined anatomically by the distal labia minora (Campbell's Urology - infections of the urinary tract p.776). Ascent of organisms into bladder is facilitated in women because of short urethra, absence of antibacterial prostatic secretions, sexual intercourse causing minor urethral trauma. It is the introital colonization with colonic

flora that is responsible for vast majority of UTIs. The risk of progression to pyelonephritis greatly increases during pregnancy, with rate as high as 30% among untreated women (Kass, 1969, 1126). In many studies, antepartum UTI has been implicated as risk factor for low birth weight and preterm infants (Kincaid Smith & Bullen, 1965). Measurement of pyuria and bacteriuria, the key indicators of UTI, can be diagnosed by direct microscopy (Stamey W.E, 1983). 95% of UTIs are caused by single bacterial species, 80% being E.coli. Second common cause is Staphylococcus saprophyticus, incidence being 5-15% (Komaroff, 1988). Micro organisms commonly encountered in vulvovaginitis are Candida, Trichomonas, Chlamydia trachomatis. Significant association between Trichomonas and preterm PROM, preterm birth and low birth weight has been observed.

### Material and methods

Hundred pregnant women with complaints of dysuria, irrespective of age, parity and gestation are selected for our study. Detailed history and clinical examination was followed by collection of two samples of clean catch mid stream urine and two vaginal swabs. Gross examination of urine was done for turbidity. First sample of urine was sent to department of Microbiology for culture, within half an hour of collection. Second sample was subjected to microscopy for evidence of pyuria and bacteriuria, by wet mount and Gram staining. Urine was cultured aerobically on blood agar, MacConkey agar by surface streaking method, using calibrated platinum loop delivering 0.1ml of sterile urine. Isolates were identified and confirmed by biochemical tests. Colony count was noted and sensitivity was tested. Of the two vaginal swabs, one moist swab was used for wet mount to detect Trichomonas and Candida species. The other swab was sent for culture and sensitivity. For Candida species and other organisms, the swab was inoculated on Sabourauds dextrose or Glucose agar, blood agar and MacConkey agar respectively. The media was incubated for twenty four hours, followed preparation of smear to look for Candida. A part of the colony was

inoculated into serum and was incubated for one hour at 37°C and examined for germ tube. Another part of the colony was inoculated onto cornmeal agar and was examined for Chlamydo spores after seven days. The bacteria which were grown on blood agar and Mac Conkey Agar were identified by colonial characters and biochemical tests. Sensitivity of the organisms was assessed.

**Results**

Most of the study cases had dysuria, urgency and frequency. 38 patients had vaginal discharge. 4 patients had hematuria. Of these, 65 cases had UTI as confirmed by bacilluria on smear and culture. 5 cases were positive on culture only. Out of 100 cases of dysuria, 54% had UTI, 26% had vulvovaginitis, 16% had combined infection. In 10%, no etiologic cause was found. In the age group of 16-25 yrs, incidence of UTI was 74.17%, vulvovaginitis was 38.46%, combined infection was 37.5%. In the age group of 26-35 yrs, UTI contributed to 29.92%, vulvovaginitis to 61.53%, combined infection to 62.5%. Incidence of UTI was higher up to 2<sup>nd</sup> pregnancy whereas occurrence of vulvovaginitis and combined vaginitis predominated from third pregnancy onwards. Table 1.

**Table 1. Relation of parity with urinary tract infection and vulvovaginitis.**

Serial no.	Gravida	Total no of cases	Patients with UTI	Patients with vulvovaginitis	Patients with combined infection	No. organism isolated
1	Primigravida	28	14 (25.92%)	4 (15.38%)	3 (18.75%)	4 (40%)
2	Gravida 2	42	30 (55.55%)	9 (34.61%)	4 (25.1%)	4 (40%)
3	Gravida 3 and above	30	10 (18.51%)	13 (50%)	9 (56.25%)	2 (20%)

Incidence of UTI was higher compared to vulvovaginitis in third trimester of pregnancy, 61.11% Vs 57.69%. But in first trimester, vulvovaginitis was more common than UTI 76.9% Vs 12.5%. The most common organism isolated in cases of UTI was E.coli in 77.2%, followed by coagulase negative Staphylococci 11.4%. Table.2

**Table 2. Incidence of causative organism of UTI as identified by culture.**

No. of patients with UTI	E.Coli	Coagulase negative Staphylococcus	Klebsiella	Proteus	Pseudomonas	Enterobacter
70	54 (77.21%)	8 (11.2%)	4 (5.71%)	2 (2.85%)	1 (1.42%)	1 (1.42%)

The most common organism in vulvovaginitis was Candida 55.55%, non specific vaginitis 38.8%

Trichomonas 33.33%. Table.3

**Table.3 Analysis of organisms involved in vulvovaginitis**

Total No. of patients with vulvovaginitis	Candida species	Non specific vaginitis	Trichomonas vaginalis
42	20(55.55%)	14(38.88%)	12(33.33%)

**Discussion**

In our study group, the incidence of UTI was 54%, which is similar to the study done J.N. Medical College, Belgaum. But the incidence of dysuria due to vulvovaginitis and combined infections is higher in our study, 26% Vs 15.5%, and 16% Vs 4.8% respectively. This could be explained due to poor hygienic conditions, changes in sexual behaviour, variation in individual susceptibility to infection.

The incidence of cases without any isolate was 10% which could be explained due to non availability of facilities for culture of Chlamydia. Most of these cases were in the age group of 16-25 yrs. The incidence of UTI as the cause of dysuria was higher than vulvovaginitis in younger age group compared to elder age group. On the contrary, UTI remained to be the predominant cause in all age groups in the other study of J.N. Medical college. The difference in our study can be explained by effect of increasing parity on pelvic tissues, predisposing to vaginal colonization with pathogenic bacteria and urethral colonization is determined by vaginal flora. Most of the patients in our study were in the third trimester 57%, 40% in the second and only 3% in the first trimester. This can be explained by the pressure effect of gravid uterus and hormonal influence on the ureters, increasing stasis and vesico ureteric reflux. Most of our patients had dysuria, urgency, frequency and suprapubic pain as the presenting complaints. Low incidence of loin pain with chills and rigors may be explained due to restriction of infection to lower urinary tract, early detection and treatment. In our study, there was a good correlation between incidence of pyuria and culture positivity due to inclusion of only symptomatic cases. Common offending organism is E.coli 77.21%, which is similar to that observed in other studies (Kinacid Smith, 1965). The high incidence of infection could be explained on the basis of their preponderance in fecal flora, leading to colonization of urinary tract and their special affinity to uroepithelial cells. The virulent factors of E.coli help them to thrive in alkaline pH of urine. The other causative organisms in decreasing order of frequency included Coagulase negative Staphylococci, Klebsiella, Proteus. Least encountered were Enterobacter and Pseudomonas. Organisms were found to be susceptible to the following antibiotics in the decreasing order of frequency- Cephalosporins, Ampicillin, Nitrofurantoin. Incidence of vulvovaginitis due to Candida was high in third trimester, due to acidic pH of vagina. The relative incidence of Trichomonas and non specific vaginitis is almost same. Trichomonas infection favours secondary bacterial invasion by rising the vaginal pH. The high incidence of E.coli in both UTI and vaginitis can be explained on the basis that urethra, bladder and vagina lie in close proximity to each other and are derived

embryologically from urogenital sinus, which favours colonization by E.coli. Under unfavourable conditions, this organism may become pathogenic and cause UTI and vaginitis.

### Conclusion

Dysuria during pregnancy can appear at any gestation, more frequently in third trimester. From both scientific and clinical point of view, it is useful to consider the infection of genital tract and urinary tract as separate disease entities which may produce similar symptoms. Therefore, every effort must be made to get accurate diagnosis and localize the infection as quickly as possible with minimal cost and discomfort to the patient, so that better management strategies can be planned. This can avoid maternal complications and adverse fetal outcomes.

### REFERENCE

1. Campbell's urology, Infections of the urinary tract page.No.776. || 2. Harrison's Text Book. || 3. Kass E.H, Wrenbg Med.J. Aug 1969 1;1220-1226. || 4. Komaroff, Vol 31, No.4, Dec 1988. || 5. Kincoide Smith, Lancet 1965, 1:395. || 6. Macleod's Clinical methods. || 7. Stamey W.E, AMJ. Med 75(suppl)53:1983. |